



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,821	06/09/2002	Robert Short	H0664/7002	2143

23628 7590 09/27/2004

WOLF GREENFIELD & SACKS, PC
FEDERAL RESERVE PLAZA
600 ATLANTIC AVENUE
BOSTON, MA 02210-2211

EXAMINER

NAFF, DAVID M

ART UNIT	PAPER NUMBER
----------	--------------

1651

DATE MAILED: 09/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/018,821

Applicant(s)

SHORT ET AL.

Examiner

David M. Naff

Art Unit

1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/9/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claims examined on the merits are 1-34, which are all claims in the application.

Specification

5 The disclosure is objected to because of the following informalities: the specification fails to contain headings designating different sections.

 The following guidelines illustrate the preferred layout and content for patent applications. These guidelines are suggested for
10 the applicant's use.

Arrangement of the Specification

 The following order or arrangement is preferred in framing the specification and, except for the reference to the drawings, each of the lettered items should appear in upper case, without underling or
15 bold type, as section headings. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) Title of the Invention.
- 20 (b) Cross-Reference to Related Applications.
- (c) Statement Regarding Federally Sponsored Research or Development.
- (d) Reference to a "Sequence Listing," a table, or a computer
25 program listing appendix submitted on compact disc (see 37 CFR 1.52(e)(5)).
- (e) Background of the Invention.
 - 1. Field of the Invention.
 - 2. Description of the Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- 30 (f) Brief Summary of the Invention.
- (g) Brief Description of the Several Views of the Drawing(s).
- (h) Detailed Description of the Invention.
- (i) Claim or Claims (commencing on a separate sheet).
- (j) Abstract of the Disclosure (commencing on a separate sheet).
- 35 (k) Drawings.
- (l) Sequence Listing, if on paper (see 37 CFR 1.821-1.825).

The following suggestions are made.

Art Unit: 1651

Page 1,

Above the first line insert --

BACKGROUND OF THE INVENTION

1. Field of the Invention

Between lines 6 and 8 insert --

2. Description of the Related Art

Page 9, above the first line insert --

SUMMARY OF THE INVENTION

Page 14, between lines 9 and 11 insert --

BRIEF DESCRIPTION OF THE DRAWINGS

Page 15, above line 5 insert --

DETAILED DESCRIPTION OF THE INVENTION

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C.

112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 1651

Claims 1-34 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a cell culture surface obtained by coating a substrate by plasma polymerization of a carboxylic acid in the presence of the substrate to obtain an acid

5 functionality as required by claim 13 or 14, and for a method of preparing the cell culture surface requiring plasma polymerization and set forth above, and when requiring a copolymer or hydrocarbon in combination with an acid, for 1,7-octadiene as the hydrocarbon in combination with the acid or as a hydrocarbon forming the copolymer,

10 does not reasonably provide enablement for obtaining the disclosed results when obtaining a cell culture surface substantially different than described by the working embodiments demonstrated to provide the disclosed results. The specification does not enable any person skilled in the art to which it pertains, or with which it is most

15 nearly connected, to make and use the invention commensurate in scope with these claims.

It would be speculation and unpredictable as to whether desired results from the invention will be obtained when performing the invention substantially different than working embodiments described.

20 The claims must be commensurate in scope with the enablement provided in the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C.

112:

Art Unit: 1651

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5

Claims 1-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10

In line 2 of claim 1 and where recited in other claims, "high acid functionality" is uncertain as to meaning and scope. Being "high" is relative and subjective, and it would be uncertain as to the amount of functionality that is within and not within the scope of the claims. Additionally, it is uncertain as to functionality that is high acid since an acid function is not specified.

15

Claims 5-34 are confusing and unclear, and are improper dependent claims by being multiple dependent and depending on another multiple dependent claim or on a claim that depends on a multiple dependent claim.

20

In line 3 of claim 9, --- or --- should be inserted before "epithelial".

25

In line 2 of claim 20, reciting a range that includes zero (0-50%) as a lower limit makes unclear as to how the range is to patentably limit the invention. When zero, the component or condition required within the range does not exist. This alternative claiming of being present and not being present when claiming a range beclouds

Art Unit: 1651

and makes unclear as to the invention claimed. This also applies to claims 29 and 32 that require a range with zero as a lower limit.

Claims 21-25 are unclear as to how the vehicle differs from the cell culture surface of claim 1 since the claims require no structure different from the cell culture surface that forms a vehicle comprising the cell culture surface. Claim 23 is unclear as to how the matrix material in line 2 forms a vehicle in combination with the cell culture surface. Does the matrix material provide the cell culture surface, or does it have some other function?

Claims 33 and 34 are unclear by requiring ratios of acrylic acid and 1,7-octadiene or ratios of acid and hydrocarbon, and requiring a ratio where 1,7-octadiene or hydrocarbon is zero. When zero, there is no 1,7-octadiene or hydrocarbon present, and a ratio does not exist.

It is suggested that the embodiment where acrylic acid or acid is 100% be deleted from claims 33 and 34, and claimed in a dependent claim requiring 100% acrylic acid or acid. Additionally, in the claims, the percentage amounts required are not ratios. In line 2 of claims 33 and 34, it is suggested that "ratios" be replaced with --- percentages ---. Additionally, to be clear that the percents are alternative, it

is suggested that a comma be inserted after "50", "40" and "30" percents for octadiene in claim 33 and after the same percents hydrocarbon in claim 34. With this change, after "20" for percent octadiene in claim 33, insert --- , or ---, and make the same insertion after "20" for percent hydrocarbon in claim 34. The 100

percent acid and 0 percent octadiene or hydrocarbon should be deleted

Art Unit: 1651

and claimed in a separate dependent claim requiring 100 percent acid as set forth above.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-14 and 16-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Daw et al (C1 on form 1449) or France et al (C2 on form 1449).

The claims are drawn to a cell culture surface having a high acid functionality to which a cell can be releasably attached. The cell culture surface can be prepared by plasma polymerization of acrylic acid or a copolymer of acrylic acid and 1,7-octadiene to coat a substrate. The surface can have an acid functionality of 5-20% or greater than 20%.

Daw et al and France et al disclose plasma polymerization of acrylic acid or plasma co-polymerization of acrylic acid and 1,7-octadiene on a substrate such as foil, or tissue culture wells or dishes to produce a surface containing acid functionality that binds cells and can be used for cell culture. The percent acid functionality can be in the range of 5-20% or greater than 20%. For example, see Daw et al (page 1718, under "Experimental procedure";

Art Unit: 1651

paragraph bridging the columns and Figure 3 on page 1720; Figures 5 and 6 on page 1722; under "Discussion" on page 1723; and under "Conclusions" on page 1724). Also see France et al (paragraph bridging pages 37 and 38; under "Cell attachment assay" and under "Characterisation of PCPs" and Table 1 on page 38; under "Discussion" on page 41; and under "conclusions" on page 42.

The cell binding surface resulting from plasma polymerization of acrylic acid or from co-polymerization of acrylic acid and 1,7-octadiene disclosed by Daw et al or France et al is the same as presently claimed. A vehicle as required claims 21-25 is not different from the polymer or copolymer of Daw et al or France et al since the claims require no structure to distinguish the vehicle from the polymer or copolymer. The method of claims 26-34 for using plasma polymerization to produce the cell culture surface is the same as disclosed by Daw et al or France et al for carrying out plasma polymerization to produce a surface for binding and culturing cells.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner

Art Unit: 1651

presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daw et al or France et al in view of Yanagihara et al (4,693,799).

The claim requires propionic acid as the acid subjected to plasma polymerization to produce the cell culture surface.

Daw et al and France et al are described above.

Yanagihara et al disclose (col 6, lines 44-45 and line 58) producing a plasma polymerized film enriched in hydroxyl or carboxyl groups by plasma polymerizing an acid such as propionic acid.

It would have been obvious to use propionic acid in place of the acrylic acid of Daw et al or France et al since Yanagihara et al suggest that propionic acid will provide the function of acrylic acid by disclosing plasma polymerization of propionic acid to produce a film containing carboxyl groups.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper

Art Unit: 1651

timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-14 and 16-34 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-26 of copending Application No. 10/111,155 in view of Daw et al or France et al.

The claims of the copending application require a surface obtainable by plasma polymerization that can be produced by plasma polymerization of an acrylic acid or plasma co-polymerization of acrylic acid and octa 1,7-diene.

It would have been obvious to use the surface of the copending application claims as a cell culture surface as suggested by Daw et al or France et al using the same type of plasma produced surface for binding and culturing cells.

This is a provisional obviousness-type double patenting rejection.

Double Patenting

Claim 15 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable

Art Unit: 1651

over claims 1-26 of copending Application No. 10/111,155 in view of
Daw et al or France et al as set forth above, and in further view of
Yanagihara et al.

For the type of reasons set forth above when applying this
5 reference, it would have been obvious to substitute propionic acid for
the acrylic acid of the copending application claims.

Conclusion

Any inquiry concerning this communication or earlier
communications from the examiner should be directed to David M. Naff
10 whose telephone number is 571-272-0920. The examiner can normally be
reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful,
the examiner's supervisor, Mike Wityshyn can be reached on 571-272-
0926. The fax phone number for the organization where this
15 application or proceeding is assigned is 703-872-9306.

Art Unit: 1651

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David M. Naff
Primary Examiner
Art Unit 1651

DMN
9/22/04